

# Orchids of Nepal<sup>1</sup>

BY

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(With four text-figures in a plate)

This instalment on the orchids of Nepal deals with the genera that are placed under the tribe Polychondroideae, the subtribes are indicated accordingly e.g. *Listera* (Listereae), *Cephalanthera* & *Epipactis* (Cephalanthereae), *Arundina* & *Thunia* (Sobralieae), *Nervilia* (Pogonieae), *Spiranthes* (Spirantheae) and *Herpysma*, *Goodyera* and *Zeuxine* (Erythroideae). The genera are arranged alphabetically.

## ARTIFICIAL KEY TO THE GENERA

- A. Stem with a thick underground part or a pseudobulb, or a stout subtuberos rootstock —
  - B. Inflorescence terminal; lip sessile not spurred, base concave and embracing the column. Terrestrial herbs, stem leafy, leaves distichous .....*Arundina*
  - BB. Inflorescence lateral. Lip spurred, sidelobes embracing the column .....*Thunia*
- AA. Stem not bulbous, roots often bulbous —
  - C. Stem simple, erect, roots tuberous —
    - D. Spur long, lip exposed beyond the base of the lateral sepals .....*Herpysma*
  - DD. Spur short i.e. saccate, lip flat —
    - E. Lateral sepals not free; spike dense flowered and spiral; leaves several .....*Spiranthes*
  - EE. Lateral sepals free —
    - F. Two leaved herbs .....*Listera*
  - FF. Many leaved herbs —
    - G. Lip clawed beyond the spur, column with two linear appendages in front; stigmas 2 .....*Zeuxine*
    - GG. Lip not clawed beyond the spur, column not appendaged; stigma 1 .....*Goodyera*

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- CC. Stem simple, erect from an underground tuber; 1-leaved; sepals erect or spreading; column elongate not winged..... *Nervilia*
- CCC. Stem simple, erect from an underground rootstock, leafy, leaves plicate—  
 D'. Sepals conniving; lip hidden by the sepals, not clearly divided into epichile and hypochile ..... *Cephalanthera*
- D'D'. Sepals free, spreading; lip clearly divided into epichile and hypochile. Anthers dorsal, caudicle rudimentary ..... *Epipactis*

### **Arundina Bl.**

These are terrestrial orchids some 1.5 to 2.0 m tall and having reed-like stems because of which the genus gets the name. Leaves are numerous, membranous and narrow. Flowers are large in racemes with petals broader than the sepals, and labellum large and semi shaped, which is bright red or pale violet while the sepals and petals are white.

**Arundina graminifolia** (Don) Hochr. in Bull. N.Y. bot. Gard. 6:270, 1910; Holttum, 186, 1953; Hara, 425, 1966. *Bletia graminifolia* Don, Prodr. Fl. Nep. 29, 1825. *Limodorum graminifolia* Buch. Ham. ex D. Don, loc. cit. *Arundina bambusifolia* Lindl. Gen. et Spec. Orch. 125, 1831; F.B.I. 5:857, 1890; King & Pantl. 113, t. 156, 1898. *Cymbidium bambusifolium* Roxb. Fl. Ind. ed. 2, 3:460, 1832. (Fig. 1).

Flowers large, catleya-pink, sepals and petals c. 5.0 cm long, orbicular-obovate, apiculate; lip brighter red than the sepals, sidelobes short, midlobe small, bifid, crisped, disk with 3 lamellate nerves. Flowering time during late August to October, rarely in June or July. Collected from Nilkanth area, Suparitar, Pokhara, Phidim to Moktara, Pisapur (Kitamura), locality unknown (Herklotts).

### **Cephalanthera L. C. Rich.**

Stem creeping, subterranean (rhizome), roots tuberous when the plant is leafless or they may be fibrous when the stem is leafy. Lower leaves lanceolate while the upper ones are linear. Flowers on a lax raceme, c. 1.5 cm long, white with yellow spots on the lip which has a short ridged epichile.

**Cephalanthera ensifolia** Rich. Orch. Annot. 29: 1817; Lindl. Gen. et Spec. Orch. 412, 1840; F.B.I. 6: 125, 1890; King & Pantl. 271, t. 362, 1898; Hara, 2nd. Rpt. 180, 1971.

Flowers white or lip spotted with yellow, sepals lanceolate, acute, petals elliptic, obtuse; ridges in lip, hypochile concave or saccate, embracing the column, epichile (midlobe) short, triangular, obtuse, 5-ridged, often marked with yellow spots. Flowering during April to

June. Collected from Pisang to Tatopani (Kitamura), Dhunche-Goss-  
ainkund (Hara).

### **Epipactis Sw.**

Large terrestrial erect orchids with sessile leaves. Flowers in racemes, pendulous, bracts leafy. The lip is short, sessile on the base of the column. This orchid differs from *Cephalanthera* in structural details of the flowers which are rather large and showy.

#### ARTIFICIAL KEY TO THE SPECIES OF *Epipactis*

Flowers 2.5—3.75 cm in diam.; hypochile narrow.....*consimilis*

Flowers c. 2.5 cm in diam.; hypochile much broader than the epichile  
.....*royleana*

**Epipactis consimilis** Wall. ex Hook. f. in Fl. Brit. Ind. 6: 126, 1890; King & Pantl. 272, t. 364, 1898. Parker, Forr. Bull. bot. ser. 76: 8, 1931.

Terrestrial with fibrous roots, leaves sessile, broadest lower ones while the upper ones narrow. Flowers orange-green, rarely spotted, drooping; sepals and petals pubescent; lip as long as the sepals, hypochile (sidelobes) narrow, oblong and turned upwards, epichile (mid-lobe) longer, lanceolate, inflexed at the base and then recurved. Flowering during February and March. Collected from West Nepal (Parker).

**E. royleana** Lindl. in Royle, Ill. Himal. 368, 1839, et Gen. et Spec. Orch. 461, 1840; F.B.I.6: 126, 1890.

Flowers green with yellow lip which is longer than the sepals, sepals and petals nearly equal, glabrous. Hypochile of lip large, saccate and much broader than the ovate epichile. Collected from Thulo Gompha khola at 3100 m, authority Kitamura.

### **Goodyera R. Br.**

The genus is named after an English botanist—J. Goodyer. These are known as ‘rattle snake plantains’, the name being given because of the mottlings on the foliage. These are also terrestrial leafy orchids with stem decumbent or creeping. Leaves are usually thick, petiolate and with a sheath. Flowers small on racemes, sepals often pubescent outside, dorsal sepal concave and along with the petals forming a hood over the column. Stigma is undivided.

#### ARTIFICIAL KEY TO THE SPECIES OF *Goodyera*

A. Stem stout, 45-60 cm tall, many leaved; spike dense flowered, bracts equalling the flowers .....*procera*

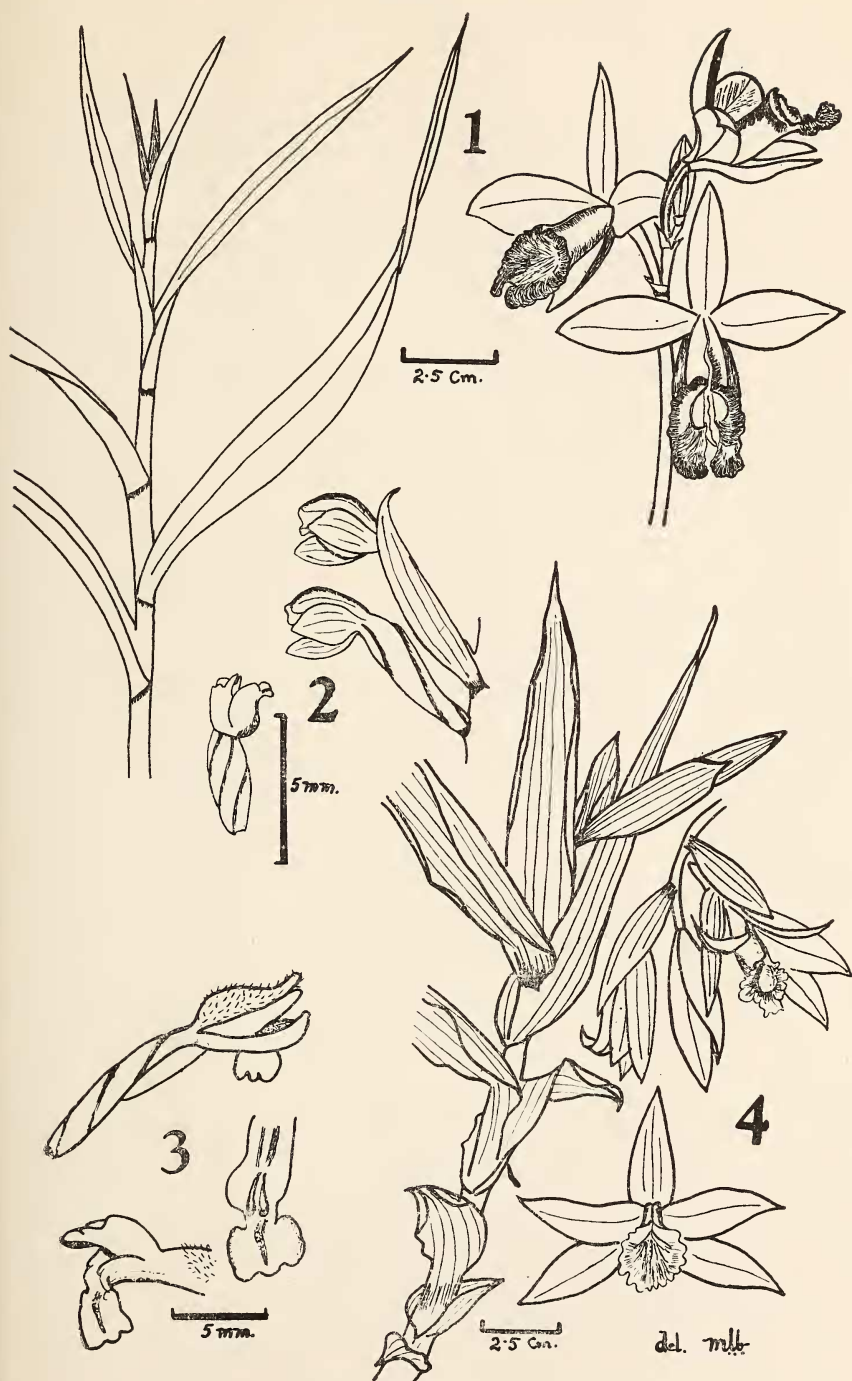


Fig. 1. *Arundina graminifolia* (Don) Hochr.  
 Fig. 2. *Goodyera procera* Hk. f.  
 Fig. 3. *Herpysma longicaulis* Lindl.  
 Fig. 4. *Thunia alba* Reichb. f.



AA. Stem 10-20 cm tall, few leaved—

B. Lip smooth, channelled, lamellate within, with no hairs or soft setae ..... *repens*

BB. Lip within setose and tubercled—

C. Leaves 3-5 nerved, never reticulate; bracts exceeding the flowers; fls. pink ..... *foliosa*

CC. Leaves mottled with white—

D. Bracts exceeding the flowers, sepals with pink tips..... *hemsleyana*

DD. Bracts about equalling the flowers—

E. Leaves ovate-lanceolate, fleshy (thick) ..... *vittata*

EE. Leaves cordate ..... *cordata*

DDD. Bracts shorter than the flowers; fls. white..... *secundiflora*

**Goodyera cordata** (Lindl.) Bth. ex Hook. f. in Fl. Brit. Ind. 6:114, 1890; Holttum, 122, 1953; Hara, 2nd Rpt. 187, 1971. *Georchis cordata* Lindl. Gen. et Spec. Orch. 496, 1840.

Plants slender, c. 15-30 cm long; leaves ovate-cordate, basal sinus variable in depth, petiole slender, 6-12 mm long. Inflorescence a lax-flowered spike, flowers pubescent, bracts equalling or shorter than the flowers. Lip gibbous. Authority Hara.

According to Hara, the scape is shortly hairy, while the bracts are more densely hairy and the lip is also hairy on the lower half of inside.

**G. foliosa** (Lindl.) Bth. ex Hook. f. in Fl. Brit. Ind. 6:113, 1890; King & Pantl. 281, t. 374, 1898; Holttum, 121, 1953; Hara, 435, 1966. *Georchis foliosa* Lindl. Gen. et Spec. Orch. 496, 1840.

Bracts exceeding the flowers. Lip saccate, beak dilated, base setose within. According to Hara, the chief distinguishing characters are "blunt tipped papilla-like hairs on the bracts and scape". Authority Hara.

**G. Hemsleyana** King & Pantl. in Journ. Asiat. Soc. Beng. 64:342, 1895 et Ann. Roy. bot. Gard. Calcut. 8:281, 1898.

Plants 15-25 cm long; leaves 3 to 5 unequal, broadly ovate, acute; bracts lanceolate, exceeding the ovary. Flowers 1.5 cm long, white, sepals with long sparse hairs, tips pink, petals falcate. Lip with a sharp tooth on either side of the mouth of the saccate base, apical lobe oblong. Flowering time during July and early August. Extremely rare, only collected from Bagdoar at 2135 m.

**G. procera** Hk. f. Exot. Fl. 39, 1823; F.B.I. 6:111, 1890; King &



Pantl. 282, t. 278, 1898; Hara, 436, 1966. (Fig. 2).

Flowers minute, whitish, fragrant, sepals broadly ovate, obtuse, 1 nerved, petals spathulate; lip not longer than the column, base saccate, softly setose within, 2 large calli within the obtuse recurved tip. Occasional in the tropical region. Flowering during June. Collected from Eastern Nepal (Banerji).

**G. repens** (Linn.) R. Br. in Ait. Hort. Kew, ed. 2, 5:198, 1813; F.B.I. 6:111, 1890; King & Pantl. 282, t. 279, 1898; Hara, 436, 1966. *Satyrium repens* Linn. Sp. Pl. ed. 1, 945, 1753. *Goodyera marginata* Lindl. Gen. et Spec. Orch. 493, 1840.

Flowers whitish, lateral sepals ovate, acuminate, 1 nerved, dorsal sepal narrow, petals linear-falcate; lip ventricose, shortly beaked, channelled within, rostellar arms short. Flowering during July and August. Collected from Bagdoar, Taksindhu forest, Chandragiri.

**G. secundiflora** Lindl. in Journ. Linn. Soc. 1:182, 1857; F.B.I. 6:113, 1890; King & Pantl. 283, t. 376, 1898; Hara, 2nd. Rpt. 188, 1971.

Plants c. 15-30 cm long, covered with loose sheathing leaf-petioles. Leaves few, ovate-lanceolate, lamina base rounded, petiole stout and sheathing, dark green with silvery white veins. Inflorescence many flowered, c. 15 cm long, bracts shorter than the flowers. Lip saccate with setae within. Authority Hara.

**G. vittata** (Lindl.) Bth. ex Hook. f. in Fl. Brit. Ind. 6:113, 1890; King & Pantl. 280, t. 382, 1898; Hara, 437, 1966. *Georchis vittata* Lindl. in Journ. Linn. Soc. 1:184, 1857.

"This is determined only by the unicate sterile specimen with leaves silvery striated on the midrib and white reticulated at the apex of the blade"—authority Hara.

### **Herpysma Lindl.**

Due to the creeping habit, the orchid is named as such. The leaves are membranous with large hyaline tubular sheaths. Flowers are dense on a short raceme, white but the sepals and petals have a pinkish tint. Lip is deflexed from the middle, apical lobe is blunt and broad, spur is as long as the ovary and parallel to it.

**Herpysma longicaulis** Lindl. Gen. et Spec. Orch. 506, 1840; F.B.I. 6:98, 1890; King & Pantl. 276, t. 367, 1898. (Fig. 3).

Flowers suberect, pale pink, sepals subequal, free, 5 nerved, dorsal sepal forming a hood with the petals, petals oblong, obtuse. Lip shorter than the sepals, subpanduriform, reflexed from the middle, adnate to the sides of the column, spreading, spur elongate and

straight, tip bifid. Flowering during September to November. Collected from Bajrabarahi at c. 1370 m.

### **Listera** R. Br.

The genus is named after an English physician—Martin Lister. These orchids are known as 'Tway blades' in the United States. These are rather insignificant terrestrial orchids with two leaves and fibrous roots. Flowers are small in racemes, with sepals and petals spreading; lip is pendulous from the base of the column.

**Listera pinetorum** Lindl. in Journ. Linn. Soc. 1:175, 1857; F.B.I. 6:104, 1890; King & Pantl. 256, t. 338, 1898; Kitamura, 104, 1955.

Terrestrial two leaved orchids. Inflorescence a few flowered raceme, flowers decurved, greenish-brown; sepals and petals subequal, free, spreading or reflexed, yellowish green. Lip cuneately broadly obcordate from a narrow base, deeply 2-lobed, twice or even thrice as long as the sepals, brownish, but deeper than the sepals. Collected from Thulo Gompha khola at 3500 m. Authority Kitamura.

### **Nervilia** Comm. ex Gaud.

Perennial tuberous, coming into leaf after flowering. Tubers globose with small warty knobs. Leaf one, broadly cordate or orbicular. Sepals and petals subequal, spreading; lip adnate to the base of the column and embracing the same at its basal region, column broadened upwards. Schlechter and later Santapau & Kapadia consider *Nervilia* Comm. ex Gaud. as a distinct genus "primarily differing from *Pogonia* Juss. by the production of their flowers before the leaves and by having a separate stem which bears no leaves but may have scales or scaly sheaths".

#### ARTIFICIAL KEY TO THE SPECIES OF *Nervilia*

Flowers solitary, c. 2.5 cm long; sepals & petals white, anterior lobe of lip with 2 obscure sidelobes ..... *macroglossa*

Flowers 7-15, c. 1.5 cm long; sepals & petals green, anterior lobe of lip undulate-crenate ..... *scottii*

**Nervilia macroglossa** (Hk.f.) Schltr. in Engl. Bot. Jahrb. 45:402, 1911; Hara, 445, 1966. *Pogonia macroglossa* Hk. f. in Fl. Brit. Ind. 6: 120, 1890; King & Pantl. 267, t. 356, 1898.

Leaf reniform, petiole c. 7.5 cm long; flowering stalk bearing a single nodding flower, c. 2.5 cm long; sepals and petals subequal,



linear-lanceolate. Lip gibbous, apical half expanded, with two obscure sidelobes near its base. Authority Hara.

*N. scottii* (Reichb. f.) Schltr. in Engl. Bot. Jahrb. 45:404, 1911. *Pogonia scottii* Reichb. f. Flora, 276, 1872; F.B.I. 6:120, 1890; King & Pantl. 269, t. 360, 1898.

Leaf ovate-reniform, petiole 10-20 cm long. Inflorescence a raceme of 7-15 flowers, flowers horizontal, sepals and petals connivent, linear-lanceolate, acuminate, dull green with red nerves. Lip 3 lobed to about the middle, subclawed, base saccate, yellowish-white with purple nerves, sidelobes obtuse, midlobe suborbicular, velvety. Flowering time April to May. Collected from Ranibari at 1370 m.

### **Spiranthes** L. C. Rich.

Terrestrial leafy orchids with tuberous roots. Flowers are small in spirally twisted spikes, due to which the genus gets the name. Sepals more or less connate and with the petals forming a hood, the lateral sepals are gibbous at base, thus the spur is short or saccate. The bracts are longer than the ovary.

*Spiranthes sinensis* (Pers.) Ames, Orch. 2:55, 1908. *Neottia sinensis* Pers. Syn. Pl. 2:511, 1807.

Flowers small, pink or white crowded on a spiral spike; lateral sepals 3 mm long, obtuse, tips recurved, spreading, dorsal sepals combined with the petals to form a 3-lobed hood enclosing the column. Lip oblong, crisp, base saccate having 2 glands. Distributed widely at 1980 to 2285 m. Flowering during September to early November. Collected from Manichur, Chaubasa to Risingo, Nayapati to Risingo, Godavari, Gumurang to Sarti (Kitamura), Lokwa (Kitamura). King & Pantl. mention that the flowers produced in spring are white, while those appearing in autumn are often pink. Our observations do not support this seasonal change to effect the colour of the flowers. White flowered specimens are common in Godavari throughout the year except the cold months.

sub. sp. *australis* (R. Br.) Kitamura in Acta Phytotax. Geobot. 21:23, 1964, et Fl. Nep. Himál. 451, 1966. *Spiranthes australis* (R.Br.) Lindl. Bot. Reg. t. 823, 1824 et Gen. et Spec. Orch. 464, 1840; F.B.I. 6:102, 1890.

Kitamura has separated this subspecies from the nominate race by the latter being glabrous on its inflorescence and ovary. The Himalayan species collected by Kitamura are all puberulous on the spikes and ovaries. Collected from Nagarkot by Kitamura.

### **Thunia** Reichb. f.

The orchid is named in honour of Count von Thun Hohenstein